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Format No: CP/TF/01

TEST REPORT OF PRECAST COVER SLAB

Lab ID : **CP-2019-07-15-38** **Date: 05-09-2018**

Customer : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

Address : Vidyaranyapura Sub Division, BBMP, Bangalore.

Project Name : Emergency Works Including Filling of Pot Holes, Desilting of Drains and Providing Missing Covering Slabs in Ward No.11(Kuvempunagara) Vidyaranyapura Sub Division.

Agency : Sri.A.Puttaraju, #48/5, Pipeline B Cross, Bhabalinagara, Jalahalli, Bangalore-560013.

Customer's Reference : BBMP/EE/BTP/WO/99/2018-19

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 01-09-2018

Sample Type /Size : Precast Cover Slab(100 mm)

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete

Date of test : 01/09/2018

Sl. No.	Identification Mark	Diameter of the core	Height of the core	Weight of the core	Area	Failure Load	Core Compressive strength	Corrected Cylinder Compressive strength	Equivalent Cube Compressive strength
		(mm)	(mm)	(kg)	(Sq.mm)	(KN)	(N/mm^2)	(N/mm^2)	(N/mm^2)
1	Cover Slab-1	75.51	100.48	1.116	4477	80.9	18.1	16.8	21.0
2	Cover Slab-2	75.49	100.52	1.122	4475	82.3	18.4	17.1	21.4
3	Cover Slab-3	75.50	100.51	1.118	4476	81.5	18.2	16.9	21.2

Note:

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

TEST RESULTS OF GRADATION FOR WMM

Lab ID : **CP-RW-2019-07-15-38** **Date: 08-09-2018**

Customer : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

Address : Vidyaranyapura Sub Division, BBMP, Bangalore.

Project Name : Emergency Works Including Filling of Pot Holes, Desilting of Drains and Providing Missing Covering Slabs in Ward No.11(Kuvempunagara) Vidyaranyapura Sub Division.

Agency : Sri.A.Puttaraju, #48/5, Pipeline B Cross, Bhabalinagara, Jalahalli, Bangalore-560013.

Customer Reference : BBMP/EE/BTP/WO/99/2018-19

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 06-09-2018

Type of Mix : WMM (Wet Mix Macadam)

Date of test : 06-09-2018

Oven Dry Weight : 11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	315	315	2.9	97.1	95-100
22.4	2259	2574	23.4	76.6	60-80
11.2	2179	4753	43.2	56.8	40-60
4.75	2251	7004	63.7	36.3	25-40
2.36	1621	8625	78.4	21.6	15-30
0.6	623	9248	84.1	15.9	8-22
0.075	1338	10586	96.2	3.8	0-5

Note:-

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TEST REPORT OF AGGEGRATE IMPACT VALUE
IS: 2386 Part IV

Lab ID : **CP-RW-2019-07-15-38** **Date: 08-09-2018**

Customer : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

Address : Vidyaranyapura Sub Division, BBMP, Bangalore.

Project Name : Emergency Works Including Filling of Pot Holes, Desilting of Drains and Providing Missing Covering Slabs in Ward No.11(Kuvempunagara) Vidyaranyapura Sub Division.

Agency : Sri.A.Puttaraju, #48/5, Pipeline B Cross, Bhabalinagara, Jalahalli, Bangalore-560013.

Customer Reference : BBMP/EE/BTP/WO/99/2018-19

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 06-09-2018

Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)

Date of test : 06-09-2018

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	300.2	300.2
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	73.9	74.0
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	225.9	225.8
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.4	0.4
5	Aggregate impact value	(B/A)*100	24.6	24.7
6	Aggregate impact value (Mean of two tests)	Pecentage	24.6	

Note:-

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DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE(IS 2386 (Part 1) 1963 (RA 2007)

Lab ID	:	**CP-RW-2019-07-15-38** **Date: 08-09-2018**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Emergency Works Including Filling of Pot Holes, Desilting of Drains and Providing Missing Covering Slabs in Ward No.11(Kuvempunagara) Vidyaranyapura Sub Division.
Agency	:	Sri.A.Puttaraju, #48/5, Pipeline B Cross, Bhabalinagara, Jalahalli, Bangalore-560013.
Customer Reference	:	BBMP/EE/BTP/WO/99/2018-19
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	06-09-2018
Type of Mix	:	Coarse Aggregate for WMM (Wet Mix Macadam)
Date of test	:	06-09-2018

Result:

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 400-12
Flakiness Index	12.8%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	12.5%	
Combined Flakiness and Elongation Index for WMM	25.3%	

Note:-
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Technical Manager

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Format No: CP/TF/01

TEST REPORT ON BITUMEN

Lab ID	:	**CP-RW-2019-07-15-38** **Date: 17-09-2018**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Emergency Works Including Filling of Pot Holes, Desilting of Drains and Providing Missing Covering Slabs in Ward No.11(Kuvempunagara) Vidyaranyapura Sub Division.
Agency	:	Sri.A.Puttaraju, #48/5, Pipeline B Cross, Bhabalinagara, Jalahalli, Bangalore-560013.
Customer's Reference	:	BBMP/EE/BTP/WO/99/2018-19
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	15-09-2018
Sample Type	:	Bitumen
Reference to BIS codes	:	IS: 1201-1220(1978) (Reaffirmed-2004)
Date of test	:	15-09-2018

Test Results

Sl.no	Name of Test	Result	Requirements as per IS:73-2013
1	Penetration at 25°C , in 1/10th mm	**64**	60 to 70
2	Softening Point, °C	**51.2**	Min. 40°C
3	Ductility, cm	**98**	Min. 75cm
4	Flash point, °C	**246**	Min. 220°C
	Fire point, °C	**272**	

Note:-
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TEST RESULTS OF GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2007)

Lab ID	:	**CP-RW-2019-07-15-38** **Date: 22-09-2018**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Emergency Works Including Filling of Pot Holes, Desilting of Drains and Providing Missing Covering Slabs in Ward No.11(Kuvempunagara) Vidyaranyapura Sub Division.
Agency	:	Sri.A.Puttaraju, #48/5, Pipeline B Cross, Bhabalinagara, Jalahalli, Bangalore-560013.
Customer Reference	:	BBMP/EE/BTP/WO/99/2018-19
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	20-09-2018
Type of Mix	:	BC-Plant (Bituminous Concrete)
Date of test	:	20-09-2018
Oven Dry Weight	:	5000 Grams

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-17(grading-2)
19	0	0	0.0	100.0	100
13.2	89	89	1.8	98.2	90-100
9.5	702	791	15.8	84.2	70-88
4.75	895	1686	33.7	66.3	53-71
2.36	587	2273	45.5	54.5	42-58
1.18	492	2765	55.3	44.7	34-48
0.6	503	3268	65.4	34.6	26-38
0.3	528	3796	75.9	24.1	18-28
0.15	458	4254	85.1	14.9	12-20
0.075	350	4604	92.1	7.9	4-10
PAN	396	5000	100	0.0	0

Note:-
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TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID : **CP-RW-2019-07-15-38** **Date: 24-09-2018**

Customer : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

Address : Vidyaranyapura Sub Division, BBMP, Bangalore.

Project Name : Emergency Works Including Filling of Pot Holes, Desilting of Drains and Providing Missing Covering Slabs in Ward No.11(Kuvempunagara) Vidyaranyapura Sub Division.

Agency : Sri.A.Puttaraju, #48/5, Pipeline B Cross, Bhabalinagara, Jalahalli, Bangalore-560013.

Customer Reference : BBMP/EE/BTP/WO/99/2018-19

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 20-09-2018

Type of Mix : BC(Bitumenous Concrete)

Date of test : 20-09-2018

Type of Binder : 60/70

% of Binder Used : 5.0%

Weight of Aggregate : 200.0 gm

Weight of Binder : 10.0 gm

Temperature of water bath : 40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	98.5	1.5	98.3	Minimum Retained Coating 95%
2	98.5	1.5		
3	98.0	2.0		

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PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR BITUMINOUS CONCRETE

Lab ID : **CP-RW-2019-07-15-38** **Date: 24-09-2018**

Customer : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

Address : Vidyaranyapura Sub Division, BBMP, Bangalore.

Project Name : Emergency Works Including Filling of Pot Holes, Desilting of Drains and Providing Missing Covering Slabs in Ward No.11(Kuvempunagara) Vidyaranyapura Sub Division.

Agency : Sri.A.Puttaraju, #48/5, Pipeline B Cross, Bhabalinagara, Jalahalli, Bangalore-560013.

Customer Reference : BBMP/EE/BTP/WO/99/2018-19

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 20-09-2018

Type of Mix : BC (Bituminous Concrete)

Date of test : 20-09-2018

Table 500-16 : Physical Requirements fo Coarse Aggregate for Bituminous Concrete

Property	Test	Result	Specification	Method of Test
Partical Shape	Flakiness Index	12.4	Combined Flakiness & Elongation Index for BC is Maximum 35%	IS:2386 Part I
	Elongation Index	11.8		
Strength	Aggregate Impact Value	22.1	Maximum 24%	IS:2386 Part IV
Specific gravity	Specific gravity	2.68	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	0.21	Maximum 2%	IS:2386 Part III

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TESTS RESULTS ON STABILITY OF MIX

Lab ID : **CP-RW-2019-07-15-38** **Date: 24-09-2018**

Customer : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

Address : Vidyaranyapura Sub Division, BBMP, Bangalore.

Project Name : Emergency Works Including Filling of Pot Holes, Desilting of Drains and Providing Missing Covering Slabs in Ward No.11(Kuvempunagara) Vidyaranyapura Sub Division.

Agency : Sri.A.Puttaraju, #48/5, Pipeline B Cross, Bhabalinagara, Jalahalli, Bangalore-560013.

Customer Reference : BBMP/EE/BTP/WO/99/2018-19

Source of Sample : Hot Mix Plant, Bangalore

Sample Condition : Satisfactory

Date of Receipt : 20-09-2018

Type of Mix : BC (Bituminous Concrete)

Date of test : 20-09-2018

The results of the tests conducted on the Bituminous Concrete mix sample are as follow

Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	11.14	11.13	10KN(min)
2	Marshal flow at 60°C, mm	3.52	3.51	2-4
3	Percent air Voids	4.82	4.83	3-5
4	Percent Voids in mineral Aggregate(VMA %)	14.28	14.26	13-15
5	Percent Voids filled with Bitumen(VFB %)	71.87	71.63	65-75
6	Density, g/cc	2.25	2.26	–

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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)

Lab ID : **CP-RW-2019-07-15-38** **Date: 29-09-2018**

Customer : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

Address : Vidyaranyapura Sub Division, BBMP, Bangalore.

Project Name : Emergency Works Including Filling of Pot Holes, Desilting of Drains and Providing Missing Covering Slabs in Ward No.11(Kuvempunagara) Vidyaranyapura Sub Division.

Agency : Sri.A.Puttaraju, #48/5, Pipeline B Cross, Bhabalinagara, Jalahalli, Bangalore-560013.

Customer Reference : BBMP/EE/BTP/WO/99/2018-19

Source of Sample : Sample supplied by Agency

Date of Receipt : 27-09-2018

Type of Mix : BC (Bituminous Concrete)

Date of test : 27-09-2018

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	A	500	501
2	Weight of the sample After extraction	B	471	472
3	Bitumen percentage	$\frac{A-B}{A} \times 100$	5.80	5.79
4	Average percentage	%	5.8	

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Lab ID : **CP-RW-2019-07-15-38** **Date: 29-09-2018**

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 471

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	4	4	0.8	99.2	90-100
9.5	62	66	14.0	86.0	70-88
4.75	112	178	37.8	62.2	53-71
2.36	88	266	56.5	43.5	42-58
1.18	29	295	62.6	37.4	34-48
0.6	11	306	65.0	35.0	26-38
0.3	46	352	74.7	25.3	18-28
0.15	45	397	84.3	15.7	12-20
0.075	45	442	93.8	6.2	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 472

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	4	4	0.8	99.2	90-100
9.5	62	66	14.0	86.0	70-88
4.75	112	178	37.7	62.3	53-71
2.36	88	266	56.4	43.6	42-58
1.18	29	295	62.5	37.5	34-48
0.6	11	306	64.8	35.2	26-38
0.3	46	352	74.6	25.4	18-28
0.15	45	397	84.1	15.9	12-20
0.075	55	452	95.8	4.2	4-10

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